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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,734

06/29/2006

Fumio Matsumoto

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

HITESHEW, FELISA CARLA

ART UNIT

PAPER NUMBER

1722

MAIL DATE

DELIVERY MODE

08/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/564,734

Applicant(s)

MATSUMOTO, FUMIO

Examiner

Felisa C. Hiteshew

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/17/06 & 6/29/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Priority

1. Receipt is acknowledged of papers filed under 35 U.S.C. 119 (a)-(d) based on an applications filed in Japan on 2/5/2003 and 1/14/2004. Applicant has not complied with the requirements of 37 CFR 1.63(c), since the oath, declaration or application data sheet does not acknowledge the filing of any foreign application. A new oath, declaration or application data sheet is required in the body of which the present application should be identified by application number and filing date.

The priority documents listed in the file in e-DAN are as follows:

- 1) JP2003-028426, filed 2003/2/5
- 2) JP2004-006719, filed 2004/1/14
- 3) JP2004-007331, filed 2004/1/14

The current Oath/Declaration list JP2003-275987, filed 17/7/2003.

The examiner request proper clarification of the priority documents.

Applicant is invited to submit and discuss prior art in accordance with 37 C.F.R. 1.56, 1.97-1.99. The examiner is requesting copies of the prior art as cited on the PTOL-1449, since all of the documents are not readily available to the examiner.

Claim Rejections - 35 USC § 112

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 is being considered vague and indefinite in that it is a method claim dependent upon the same method claim. Please rewrite and clarify the claim.

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\Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yabuhara Y, et al.

Yabuhara, Y, et al teaches high quality InP substrates grown by the VCZ method, comprising sulfur-doped InP single crystals with a dislocation density being less than 500 cm^{-2} (see abstract)

Claims 10 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asahi, et al.

Asahi, et al teaches a VGF crystal growth method and vapor-phase Fe (iron) doping technologies for semi-insulating 100mm diameter InP substrates with an average dislocation density as low as 2000 cm^{-2} (see page 252).

7. Claims 1- 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada, et al

Okada, et al teaches a VGF method for producing GaAs single crystals. The elimination of the dislocation density was taught. After the tangled dislocations are eliminated by the loop formation in the growth direction, they form a straight line, which runs along the (100) plane, and are eliminated from the lateral surface during solidification. If VGF crystal of the low dislocation density is used as a seed crystal, it is expected to promote a higher-quality crystal with a much lower dislocation density.

The difference being that Okada, et al does not teach specific dislocation density.

Zemke, et al teaches a VGF method for growing bulk InP single crystals comprising using a flat bottomed crucible with a seed the same cross-sectional size as the crystal to be grown (see fig. 1, left-hand column on page 47). It would have been obvious to one of ordinary skill in the art to modify and optimize the process parameter

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limitations, as taught by Yabuhara Y, et al, Asahi, et al Okada, et al and Zemke, et al in order to ensure proper orientation.

Expected beneficial results are evidence of obviousness, just as unexpected beneficial results are evidence of unobviousness. In re Novak 16 USPQ 2d 2041 (Fed. Cir., BPAI 1989); In re Hoffman 194 USPQ 126 (CCPA 1977); In re Skoll 187 USPQ 481 (CCPA 1975); In re Skoner 186 USPQ 80 (CCPA 1975); In re Garshon 152 USPQ 602 (CCPA 1967).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta, can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system. see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197


FELISA HITESHEW
PRIMARY EXAMINER